Eritrean Self-Help Enhancement Program
(E-SHEP)

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Final Report

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January 23, 2004: Community Meeting in Adi Kemesho

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1. Executive Summary

On May 21, 2003, CHF International was awarded a Cooperative Agreement from USAID to implement the Eritrean Self-Help Enhancement Program (E-SHEP). E-SHEP was designed to assist over 25,000 people in the drought-affected regions of Anseba and Debub to gain access to safe drinking water, develop strategies for responding to future droughts, and strengthen their community participation process. CHF implemented this program in close partnership with the highly respected Eritrean NGO, Haben, which has implemented development projects throughout the country.

E-SHEP was developed in response to the acute water shortages affecting many communities due to consecutive years of low rainfall and the deterioration of key infrastructure such as dams and wells. CHF and Haben therefore focused on interventions that created new potable water sources or rehabilitated existing sources in communities where drought had led to severe water rationing and/or the need for community members (most often women and children) to travel long distances to fetch water.

Under E-SHEP, CHF and Haben implemented **significant improvements in water supply infrastructure in 5 communities**, as well as piloting a drip irrigation scheme in one community, and providing new sanitation facilities for one school. Through these projects **over 18,000 people now enjoy improved water access**. **Nearly 300 community leaders and community members received training** in health and sanitation, drought mitigation, and/or project sustainability. **Over 11,000 person days of paid labor** were generated by E-SHEP projects, while **communities contributed over $25,000** in labor and materials toward project implementation.

Community-Driven Approach

E-SHEP employed CHF's proven Social Outreach Strategy (SOS) methodology. Within this process, formal consultations with village committees are required at key points in the project cycle, as well as community-wide meetings to ensure broad support for and understanding of projects. Haben staff received extensive training from CHF on this methodology, which was incorporated into Haben's own Community Mobilization Strategy (CMS), in order to systematize the community outreach process.

In addition to these formal strategies, informal consultations with communities took place throughout E-SHEP, as projects were constantly adapted in response to increasing costs and technical difficulties.

CHF and Haben used a highly participatory approach to project implementation, involving consultations with the communities as well as local and national government officials at every step of the process. This approach was especially important in light of the very difficult and fluctuating operating environment of Eritrea. A series of obstacles and difficulties, including skyrocketing material and labor costs, government restrictions on imports of materials and fuel, and lower-than-anticipated water yield of newly constructed water points, made it necessary to significantly redesign almost every project implemented. Community input was essential to determine how best to prioritize the use of limited resources to address huge needs for increased water access.

2. Overall Results

The following chart summarizes the impacts achieved under the E-SHEP program. The revised targets were agreed upon by CHF and USAID in May 2004 in response to steep price increases and other delays discussed below.

Output/Indicator	LOP Target	Revised Targets	Final Impacts
People with access to improved potable water sources	25,000	20,000	18,739
Infrastructure projects completed with funds leveraged from other donors	5	2	0
Water supply sources improved/developed	5	5	5
Latrines built	100	2	1
Water/san/hygiene, drought mitigation and project sustainability trainings held	10	7	6
Training participants	200	140	343
Person months of employment generated	100	50	205
Permanent jobs created or sustained	10	5	0
Livestock water sources improved	5	3	0
Garden plots with functioning drip line irrigation	2	2	10

i. Improved access to potable water

The residents of each of the 5 communities where large water supply projects were implemented have directly benefited from these projects:

Adi Kemesho	2,973
Adi Gulti	4,494[1]
Eden	8,260
Shinara	1,859
Tetri	1,153
TOTAL	**18,739**

(Further detail on each of these projects is provided in section 4.)

[1] Includes 2,930 residents of Adi Gulti, plus 1,564 residents of the neighboring village cluster who benefit from the microdam construction.

It is likely, although undocumented, that residents of neighboring communities are also benefiting, particularly in the case of the Adi Gulti microdam and the Shinara dam renovation. Initially, additional small and medium projects were envisioned to increase the number of people with improved access to water. However, budget and time constraints did not allow implementation of these additional projects.

ii. Projects completed with funds leveraged from other donors

During the program design phase, CHF and Haben had met with a series of donors who expressed strong interest in providing small project funds. These donors included UNICEF, UNDP's Power program, UNMEE (the UN peacekeeping operation), and the Demobilization and Reintegration Commission. During the E-SHEP program period, CHF and Haben also pursued small project funds from several embassies and bilateral donors. However, several factors contributed to the lack of funds from these donors for E-SHEP projects, including:

- Several agencies suffered failed (and costly) attempts to identify new water sources in the subregion of Areza, where 2 E-SHEP target communities were located. This made donors hesitant to commit additional funds to water supply interventions in that area.
- Difficult relations between the Eritrean government and the UN peacekeeping operation often delayed the allocation of funds to UN agencies attempting to fund projects in Eritrea, such as UNICEF and UNDP.
- As the Eritrean government and international agencies geared up for the return of displaced people to the border area in early 2004, donor focus also shifted to ensuring adequate water supply for those areas.

As costs increased and the availability of donor funds decreased, CHF and Haben chose to narrow the focus of E-SHEP to those five communities where significant community mobilization activities had taken place, in keeping with our community development philosophy that seeks to reward participation with concrete benefits.

iii. *Water supply sources improved or developed*

Although in several cases initial plans for new water points had to be significantly scaled back or abandoned, in each of the five initial target communities, a significant improvement to water access was implemented, meeting the target for this indicator. (Further details on each of these projects is provided in section 4.)

- ***Adi Gulti:*** A new borehole was constructed and hand pump installed, and a dam was constructed with a capacity of 150,000 $m^{3.}$
- ***Adi Kemesho:*** A new borehole was constructed, along with a 35 m^3 reservoir and distribution system. A hand pump was installed on the new borehole to provide access to water until the mechanized system is complete.
- ***Eden:*** Three new boreholes were constructed and are being used to supply water tankers delivering water to households in the community.
- ***Shinara:*** An existing dam was rehabilitated; project included removal 11,400 m^3 of silt, construction of a spillway and diversion canal, and construction of check dams to extend the life of the dam.
- ***Tetri:*** A 50 m^3 reservoir was constructed for storage and distribution of water provided by tanker through the local administration.

iv. *Latrines built*

The original E-SHEP plan called for construction of 100 household latrines. However, the experience of other agencies with latrine construction, as well as the advice of communities, suggested that institutional latrines would be a more cost-effective intervention, providing access to sanitation facilities to more people. CHF and Haben had hoped to implement 2 institutional latrine projects; however budget and time constraints allowed only 1 such project. A new 12-room latrine was constructed for the school in Eden, which currently serves 730 students. It is anticipated that the student numbers will increase to over 900 over the next several years, given anticipated population increases in the town of Eden.

v. Trainings held and training participants

A total of 343 community members received training in hygiene, project sustainability, and/or drought mitigation strategy development, as follows.

Topic	**Training events**	**Participants (Women)**
Sanitation & Hygiene	2	43 (22)
Project sustainability	3	255 (140)[2]
Drought Mitigation Strategy	2	45 (15)
Total	6	133 (52

In communities where project implementation was completed in the last days of E-SHEP, formal training did not take place. However, informal training was included in the community outreach process, especially regarding particular health and safety issues such as the use of the high-nitrate-content water in Adi Kemesho. Haben continues its relationship with these communities and will seek opportunities to provide additional training, as well as following up on E-SHEP projects.

vi. Person months of employment generated

CHF and Haben far exceeded the target of 50 person months of employment generated; over 200 person months of paid labor was generated by implementation of E-SHEP projects, providing badly-needed cash income for many E-SHEP community residents.

vii. Permanent jobs created or sustained

E-SHEP communities manage their infrastructure on a shared or voluntary basis. For example, in some communities, members of the village water committee take turns opening and closing access to water points or collecting fees for water access. Therefore, salaried positions were not created or sustained through E-SHEP projects.

viii. Livestock water sources improved

Budget constraints prevented the planned construction of two animal watering troughs. In the cases of Shinara and Adi Gulti, the dams provide surface water which is used for animal watering. Water and sanitation training included the importance of not using surface water for human consumption, but rather for animal consumption and cleaning purposes. In the

[2] This number includes 210 participants (of which 125 were women) in a 'mass training' conducted by Haben in Adi Kemesho to pilot the use of a training video prepared by the Water Resource Department.

village of Tetri, Haben provided cement to the community which will take the lead in construction of an animal watering trough.

ix. Garden plots with functioning drip-line irrigation

CHF and Haben exceeded the target of 2 garden plots with drip irrigation schemes. Working closely with the regional Ministry of Agriculture office, CHF and Haben selected 10 households in the village of Amadir to receive training and materials to set up a drip irrigation system for their vegetable gardens. Two donkeys were also purchased to facilitate transport of water to the garden plots.

3. Challenges and Obstacles

May 2003 to August 2005 was an extremely challenging time for aid organizations working in Eritrea. Like all NGOs, CHF and Haben faced a series of obstacles which delayed implementation, increased costs, or hindered fundraising efforts, all of which contributed to the difficulties in reaching the targets set for E-SHEP. (Section 4 provides more detail on the difficulties faced in each individual project).

i. NGO registration

CHF was initially given a deadline of August 18, 2003 to finalize its NGO registration in Eritrea. The registration process began upon receipt of the Cooperative Agreement, and we were informed by ERREC in August 2003 that our application was complete and under consideration. Having not yet received the registration as the deadline approached, CHF requested, and received, an extension of this deadline to November 18, 2003. CHF staff continued throughout the reporting period to follow up with ERREC, through all possible channels, on the status of the registration to ensure obtaining it by the extended deadline. CHF received notification from ERREC on November 3, 2003 that our NGO registration was complete. Funding for E-SHEP thus secured, we acted to speed up program implementation.

It is worth noting that, in May 2005 a new NGO proclamation was issued defining new requirements for the accreditation of both international and local NGOs, as well as extremely tough criteria (most notably a requirement that INGOs have US$2 million in cash and assets in Eritrea, and local NGOs have US$1 million). Although E-SHEP was in its final stages and CHF and Haben were not prevented from completing implementation of projects that had already started, this issue is seriously affecting Haben's ability to provide additional monitoring and follow up for E-SHEP communities.

ii. Lack of viable new water sources

In the case of CHF/Haben, an extensive hydrogeological survey was conducted in late 2003 for the purpose of identifying viable sites for construction of new boreholes in four of the five E-SHEP target communities. A total of 10 sites were identified in these four communities. Of these, three were fully successful, two were productive, but at lower-than-anticipated levels, and five sites failed. Similar difficulties and failure rates were faced by other agencies, particularly in the subregion of Anseba. Unusual hydrogeologic formations and rapid drops in the level of the water table due to consecutive years of drought are two reasons cited for the particular difficulty of identifying new water sources. In response to this trend, the

Government of Eritrea has shifted the focus of its own water strategy from creation of new water points to rehabilitation or improvement of existing sources, and improvement of rainwater harvesting capacity.

This low success rate for drilling of new boreholes had a significantly negative impact on the E-SHEP program. A substantial portion of the budget was used for the drilling of these boreholes, leaving a limited amount of funds to implement alternative projects. (As mentioned above, donors also became wary of supporting much-needed water projects due to these difficulties). In addition, alternative projects had to be developed. This included scaling down previous project plans to accommodate low-yield boreholes, as well as identifying completely new interventions to improve existing water sources where new ones could not be developed.

iii. Lack of availability of fuel and construction materials

The government of Eritrea tightly controls all imports. As E-SHEP prepared to begin the construction phase of its projects, the country faced a shortage of imported construction materials, in particular steel reinforcement bars and cement. The government allocated what limited materials could be imported, often prioritizing their direct needs over NGO-implemented projects, in spite of the efforts of the Water Resource Department (WRD) to obtain approval for purchase of materials by NGOs implementing water projects. These materials shortages caused delays of several months.

A similar situation occurred with respect to fuel availability. Again, NGO-led projects were often not given high priority in the allocation of limited fuel supplies, leading to further severe implementation delays.

Closely related to the issue of availability was, of course, the issue of cost. As supplies dwindled, costs skyrocketed. In some cases project cost estimates doubled between the initial project design phase and the final project agreement. Coupled with the difficulties described above in leveraging additional donor funds, this severely limited the work CHF and Haben were able to complete under E-SHEP.

4. E-SHEP Project Implementation

i. Eden

Eden is a medium sized town (population 8,260) situated between Asmara and the Anseba regional capital, Keren. Eden is well-known for its horticulture and dairy farms, however it has been seriously affected by war, recurrent drought and diminishing annual rainfall resulting in a severe shortage of drinking water. It was selected for E-SHEP based on consultations with the local government and UNICEF.

Drilling activities at the Eden site faced delays in early 2004. The drilling site selected through the initial hydrogeological survey was located on a farm owned by the PFDJ. Although CHF/Haben had consulted with and received approval from local government

authorities before proceeding, the head of the PFDJ farm stopped work and said he had not been notified of the planned activities. The issue was resolved through interventions from the Zoba Administration and pressure from the community, and drilling of three boreholes was completed in May 2004. All 3 boreholes had a yield of greater than 5 liters per second.

Protection walls were constructed for the 3 boreholes to prevent their collapse. Almost immediately, the town administration began using the new boreholes to supply water tankers for delivery of water to the community. Meanwhile, during the months of July to September 2004, the design for the civil works to be constructed at the Eden site was finalized and submitted to the Water Resource Department for review.

The WRD approved the project design, after several rounds of questions, in early 2005, and Haben signed an MOU with the WRD in April 2005. This project was intended to be completed using funds leveraged from donors other than USAID, as its scope was beyond the resources of E-SHEP. Although UNICEF continuously expressed interest in providing funding for this project, no formal commitment was made. Upon the release of the new NGO proclamation in May 2005, UNICEF stated that it would not commit funds until Haben's registration status was clear. As of the closeout of the E-SHEP project, the status of all international and local NGOs working in Eritrea was yet to be resolved or clarified by the Eritrean government.

In addition to the identification of the new water sources and construction of boreholes in Eden, the E-SHEP project provided new sanitation facilities for the elementary school in Eden. A 12-room latrine (6 seats for boys and 6 for girls) was constructed to serve the 730 students of the school.

June 15, 2004: Community Meeting in Eden

ii. Shinara

Water access in Shinara, a village of 1,859 inhabitants close to Keren, has been seriously affected by war, drought and diminishing annual rainfall for the last decades. The community excavated an earthen dam in collaboration with La Salle Brothers in 1979. Rehabilitation of this dam and reservoir, the capacity of which was greatly diminished due to silt buildup, was identified by the community has a high priority.

The excavation of the dam occurred from April to July 2004. The project included excavation of the reservoir, a diversion canal and check dams to slow the rate of future silt build-up in the dam, repair of the spillway and installation of a metal gate to control the water level.

The Shinara community was an extremely active and engaged community, and was the pilot community for the E-SHEP Training on Drought Mitigation Strategy, which was carried out in three weekends of October 2003. Active community members' participation was observed during the three sessions and training participants developed the final mitigation plan after holding deep discussions with the entire community.

Water, sanitation and health training was also piloted in Shinara, in February 2004, conducted by Haben community mobilizers and a sanitarian from the ministry of Health. This training also served as a 'training of trainers' for Haben staff, who developed the capacity to conduct the Water, sanitation and health training independently in other communities where MOH staff are not available.

Constructed Dam in Shinara

iii. Tetri

The village of Tetri is close to the town of Keren, with a population of 1,153. The unavailabillity of potable water in Tetri due to war, recurrent drought and diminishing annual rainfall has been a major problem in recent years. The inhabitants have made efforts to improve their water supply and in 2003 they expressed their readiness to cooperate with CHF and Haben to solve this problem.

Two potential well sites were identified in Tetri, and while two boreholes were drilled, no water was found in either. Prior to drilling, the community had requested E-SHEP to build a storage tank and limited distribution system, which the community would supply with trucked water. CHF and Haben had hoped for a more sustainable solution, however having failed to identify any new water sources, we agreed to look into this alternative. In discussions with the regional administration, it was decided to proceed with the construction of a reservoir and distribution system, with a commitment from the Administration to provide trucks to transport water to the reservoir. The design and budget for this project were finalized in June 2004. A community wide meeting was held in July to present final plans to the community and discuss their contribution to the project.

At this time, however, a shortage of construction materials in Eritrea had become severe, and materials could not be purchased without supporting letters from relevant government authorities. The Water Resources Department provided a support letter for E-SHEP projects, after several months of review and revision of quantities, in November 2004, and materials were purchased in December.

Construction of the reservoir in Tetri took place from January to June 2005, and the project was handed over to the community in July. The administration immediately provided water via tanker to supply the system.

Tetri community taking water from the new system

iv. Adi Gulti

The Adi Gulti cluster, consisting of 2 villages with a combined population of 2,930, depended for water on a seasonal pond and a small hand-dug well. Both water sources provide low-quality water with high likelihood of contamination, and the combined quantity of water from the pond and the well fell far short of the community's needs in the current cycle of recurrent drought. In recent years, severe water rationing has been implemented in an attempt to prevent the limited water sources from going dry before the end of the dry season.

Three potential well sites were identified in Adi Gulti through the hydrogeological survey. 2 of these boreholes were unproductive; the third produced water at approximately 1 liter per second. This was not sufficient yield for the motorized pump and reservoir previously planned. In May 2004 a handpump was installed in this borehole, which is accessed by approximately 3,000 people (including students from surrounding villages who attend the school in Adi Gulti).

As an alternative project to address the acute water shortage in Adi Gulti and the surrounding cluster of villages, Haben engineers worked extensively to design a microdam which would significantly impact the charging of existing water sources (including a handpump which had produced no water for weveral years), as well as providing a significant surface water source, while keeping to a budget within the means of E-SHEP. Site selection was finalized by Haben's technical team in September 2004 consultation with cluster committee members and the Kebabi Administrator, and final discussions with the Zoba-level Ministry of Agriculture followed in October.

Young Beneficiaries getting ready for a swim near the dam in Adi Gulti

This project was seriously impacted by the ongoing shortage of fuel in Eritrea. Unlike the other civil works projects, which only required fuel to transport construction materials to the work site, the microdam construction required a large quantity of diesel to run the earth-moving machines. Both the Zoba and potential contractors were unable for several months to commit to any schedule or cost as access to fuel was uncertain. Fuel was not obtained until February 2005, and construction began in March.

In May 2005, unusually heavy rains came to the area, flooding the body of the dam and destroying the check dams constructed by the community. Accordingly, the design of the dam was revised to withstand further rains. Construction of a spillway and pumping of water allowed construction to continue, and the dam was completed in late July.

v. Adi Kemesho

The Adi Kemesho Cluster, consisting of 4 villages with a total population of 2,973, relied on a single well for its water, and implemented severe water rationing in recent years to stretch the availability of limited water during the dry season.

Two potential well sites for Adi Kemesho were identified in the hydrogeological survey. Of the two boreholes, one failed, and the other produced a lower yield than expected. An existing well was also tested to see if a system combining the old and new wells could be designed, but the existing well also had a very low yield. An alternate design using a solar-powered pump was developed by Haben engineering staff. However, the results from two separate water quality tests indicated that the water from the new borehole was contaminated with nitrate. The maximum permissible nitrate level in Eritrea is 50mg/l but the results showed 363.26mg/l. Discussions took place with the Water Resource Department, the Ministry of Health, and USAID, to determine whether to continue the project.

An additional test of the borehole after flushing showed a reduced level of nitrates, though the level was still above permissible levels for human consumption. WRD and Haben experts agreed that further use of the borehold could lower the nitrate levels to acceptable amounts. In the meantime, the WRD recommended continuing with the project, with ongoing monitoring of the nitrate levels, and designation of the well for non-consumption uses only if needed. In November, USAID also approved CHF's request to continue with the project. Haben developed a mitigation plan to include regular testing of the borehole, signage to indicate that the well is not for human consumption, and awareness-raising in the community. At the time of project closeout, the nitrate levels had dropped further, and Haben was optimistic the nitrate levels would soon drop below acceptable limits for human consumption.

Young Beneficiaries in Adi Kemesho

Construction of the civil works took place from January to July 2005. The last step in the project was to be the installation of a solar-powered pump. This was procured from a supplier based in South Africa, which faced delays in delivering the pump to Asmara due largely to changes in commercial flight schedules (the cancellation of direct flights from Nairobi). In addition, the new NGO proclamation stated that NGOs would be expected to pay customs tax on imported goods, in conflict with USAID regulations. Therefore, Haben was unable to take possession of the solar pump when it arrived.

USAID therefore exercised its right to take possession of the solar pump at the time of program closeout. CHF and Haben requested that the pump be donated back to Haben to allow completion of the Adi Kemesho project. At the time of closeout, USAID was still considering this request.

vi. Amadir drip irrigation pilot project

In late 2004, CHF/Haben began close discussions with the Zoba Debub Ministry of Agriculture office regarding the identification of a site and selection of beneficiaries for a pilot drip irrigation project. The town of Amadir (in subzoba Dbarwa) was selected based on the availability of sufficient water and number of potential beneficiaries already cultivating household garden plots.

Ten beneficiaries were selected with a priority given to female-headed households. Further discussions took place with MOA regarding the selection of materials, in particular the quality of hose needed to avoid clogging problems seen in previous drip irrigation schemes. Start-up of the project was delayed somewhat by a change in the village administrator position. Extensive discussions took place regarding whether one community plot should be shared

among beneficiaries or households should cultivate plots adjacent to their homes. Ultimately, a combination of these was used.

Drip irrigation kits, plastic barrels, agricultural tools and improved seeds were distributed to eight beneficiaries in April, and four donkeys also provided to the community to facilitate carrying of water to garden plots. Haben, in collaboration with the branch office of the Ministry of Agriculture of Zoba Debub, trained beneficiaries on how to use the drip irrigation kit. In May, two additional drip irrigation kits were purchased and delivered to beneficiaries and this increased the number of beneficiaries to 10 (as originally planned).

As of project closeout, the pilot drip irrigation gardens were very successful, with all beneficiaries reporting successful production of planted crops (primarily potatoes).

Before *After*

Pilot Drip irrigation at Amadir

vii. Training Activities

E-SHEP training was developed by CHF and Haben in close collaboration, using elements of CHF's Social Outreach Strategy (SOS) methodology and Haben's Community Mobilization Strategy (CMS), and drawing on both organizations' community capacity building experience.

E-SHEP beneficiaries received training in several key areas:

- *Community mobilization training*: Communities were led through the process of identifying and prioritizing needs, and analyzing the advantages, disadvantages, and feasibility of potential projects to address those needs.
- *Maintenance and sustainability training*: Once projects were identified, communities were required to address issues of sustainability, and given training as necessary. Sustainability training included technical training regarding maintenance of the infrastructure project, and establishment of a maintenance fund, contributed to by community members, to ensure funds are available for maintenance and repairs.
- *Drought Mitigation Strategies:* Communities were led in the analysis of resources and obstacles related to water access, and developed a 'community mitigation plan' to identify concrete steps to address these needs.
- *Water and Sanitation Training:* Trainings on hygiene and sanitation were conducted in collaboration with regional Ministry of Health officers.

Drought Mitigation Strategy Training

CHF and Haben worked closely together on the development of a curriculum for leading communities through the development of a community-based drought mitigation strategy. The curriculum combines elements of CHF's Participatory Action for Community Action (PACE) methodology with Haben's Participatory Rural Appraisal (PRA) techniques. The curriculum includes three day-long sessions:

- Understanding the Drought Context
- Identifying Causes and Solutions
- Formulating an Action Plan

Targeted to community leaders, the DMS training results in a prioritization of issues and a set of concrete action steps that can be taken by the community to address those issues. In two communities who received DMS training, communities mobilized to construct check dams and terraces as a result of their development of a DMS.

Group Discussion at a Community Meeting for DMS training in Shinara